

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): ~~a~~A dispersion compensation element compensating chromatic dispersion of an optical pulse input ~~form~~from outside, characterized by comprising:
a waveguide guiding said optical pulse ~~form~~from an input edge to an output edge; and
dispersion varying means for making variable the absolute value of the chromatic dispersion and for making variable the sign of chromatic dispersion, independent of the absolute value of the chromatic dispersion, given to said optical pulse in said waveguide.
2. (original): The dispersion compensation element according to claim 1, characterized in that said dispersion compensation element is formed by arranging two material having different dielectric constants alternately and periodically in a direction in which said waveguide continues, and a plurality of regions different in combination of the size and the interval of one said material existing in the other said material are arranged along a direction in which said waveguide continues.
3. (original): The dispersion compensation element according to claim 2, characterized in that a plurality of said regions are mutually different in sign of chromatic dispersion for said optical pulse.

4. (original): The dispersion compensation element according to claim 2, characterized in that a plurality of said regions are mutually different in order of chromatic dispersion for said optical pulse.

5. (original): The dispersion compensation element according to claim 4, characterized in that said dispersion compensation element compensates chromatic dispersion of up to the n th order, and said regions are provided in a number of $2(n-1)$.

6. (original): The dispersion compensation element according to claim 2, characterized in that a plurality of said regions are provided in an arrangement such that the reflection of said optical pulse in the boundary between said regions in tandem with each other is minimized.

7. (original): the dispersion compensation element according to claim 2, characterized by comprising an energy supplier for supplying energy changing the refractive index of said waveguide independently from outside for each said region of said waveguide as said dispersion varying means.

8. (original): The dispersion compensation element according to claim 7, characterized in that said energy supplier applies a voltage to vary the carrier density of said waveguide to change the refractive index of said waveguide.

9. (original): the dispersion compensation element according to claim 8, characterized in that said dispersion compensation element further comprises a terminal unit different in carrier density from said waveguide, and

said energy supplier for applying a voltage is electrically connected to said terminal unit.

10. (currently amended): A dispersion compensation element compensating chromatic dispersion of an optical pulse input from outside, characterized by comprising:

a waveguide guiding said optical pulse from an input edge to an output edge; and

a dispersion varying means which is different in carrier density from said waveguide and makes the absolute value and the sign of chromatic dispersion independently variable, which are given to said optical pulse in said waveguide by applying a voltage from outside to change the refractive index of said waveguide.

11. through 23. (cancelled).